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EXAMINER	
SENE, PAPE A	

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2812	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,175	BLUMEL, SIMON	
	Examiner	Art Unit	
	PAPE SENE	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/29/2006 and 11/23/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **1-4, 6-13 and 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorg (U.S. Patent Application Publication No. 2002/0057057) in view of Bauer (U.S. Patent No. 6,130,448).

1. Referring to claim **1**, Sorg discloses an optoelectronic module **(fig. 2)**, comprising: at least one semiconductor component for emitting or detecting electromagnetic radiation **(LED 2, fig. 2, [0046])**, said semiconductor component being electrically connected to electrical lines **(fig. 2, [0049], wherein the electrical lines are the leadframes 5)** having a radiation coupling area **(fig. 2, [0051], wherein the radiation coupling area of the semiconductor component is the radiating area of the LED 2)**; at least one optical device assigned to the semiconductor component **(fig. 2, [0046], wherein the optical device is the lens 4)**; and a connecting layer made of a radiation-transmissive, deformable material arranged in a gap between the radiation coupling area of the semiconductor component and the optical device **(fig. 2, [0046], wherein the connecting layer is the resin filling 3)**, wherein the optical device and the semiconductor component are fixed relative to one another and pressed against one another to squeeze the connecting layer arranged therebetween, and wherein the connecting layer, when squeezed, is configured to generate an opposing force that strives to press the optical device and the radiation coupling

area of the semiconductor component apart **(fig. 2, [0046], wherein the LED 2 and the lens 4 are fixed relative to one another, and the connecting layer 3 are fixed relative to one another)**.

However, Sorg does not disclose that the optoelectronic module comprises a carrier element having electrical connection electrodes.

Bauer teaches an optoelectronic module, comprising: a carrier element having electrical connection electrodes and electrical lines **(fig. 2, Col. 5, Ln. 6-27, wherein the carrier element is the support substrate 24, wherein the electrical connection electrodes are the corresponding traces 34, and the electrical lines are comprised of the clip 36 and the conductive strip 30)**; at least one semiconductor component for emitting or detecting electromagnetic radiation **(fig. 2, Col. 5, Ln. 6-12, wherein the semiconductor component is the optical sensor 22)**, said semiconductor component being applied on the carrier element **(24)** and being electrically connected to connection electrodes **(34)** of the carrier element **(fig. 2, Col. 6-27, wherein the optical sensor 22 is electrically connected to the corresponding traces 34)**; at least one optical device assigned to the semiconductor component **(Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the optical device is the lens comprised by window 54)**; and a connecting layer made of a radiation-transmissive, deformable material arranged in a gap between the semiconductor component and the optical device, wherein the optical device and the semiconductor component are fixed relative to one another and pressed against one another to squeeze the connecting layer arranged therebetween, and wherein the connecting layer, when squeezed, is configured to generate an opposing force that strives to press the optical device and the radiation coupling area of the semiconductor component apart **(figs. 2 and 3, Col. 5, Ln. 63 – Col. 6, Ln. 2 and Col. 9, Ln. 58-67, wherein the connecting layer is the epoxy filling the cavity 52)**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the disclosure of Sorg, to further disclose the teaching of Bauer for the purpose of supporting the optoelectronic module **(Col. 4, Ln. 52-58)**.

2. Referring to claim **2**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Bauer further teaches that the connecting layer has a thickness of at least 30 micrometers: 25 to 500 micrometers **(fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is at least 30 micrometers)**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made, to modify the disclosure of Sorg, and further include the teaching of Bauer, for the same reason as above, with respect to claim 1.

3. Referring to claim **3**, Sorg and Bauer disclose an optoelectronic module as in claim 2, and Bauer further teaches that the connecting layer has a thickness of greater than or equal to 150 micrometers and less than or equal to 350 micrometers: 25 to 500 micrometers **(fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is greater than or equal to 150 micrometers and less than or equal to 350 micrometers)**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made, to modify the disclosure of Sorg, and further include the teaching of Bauer, for the same reason as above, with respect to claim 1.

16. Referring to claim **16**, Sorg and Bauer disclose an optoelectronic module of claim 2, and Bauer further teaches that the connecting layer has a thickness of 100 micrometers: 25 to 500 micrometers **(fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 has a thickness of 100 micrometers)**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made, to modify the disclosure of Sorg, and further include the teaching of Bauer, for the same reason as above, with respect to claim 1.

4. Referring to claim **4**, Sorg and Bauer disclose an optoelectronic module of claim 1, and Bauer further teaches that the connecting layer has a lacquer, preferably a circuit board lacquer, which is deformable in a cured state **(fig. 2, Col. 5, Ln. 57 – Col. 6, Ln. 2, wherein the epoxy has a circuit board lacquer, which is suitable as a protective lacquer for printed circuit boards)**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made, to modify the disclosure of Sorg, and further include the teaching of Bauer, for the same reason as above, with respect to claim 1.

6. Referring to claim **6**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Sorg further discloses that a refractive index of the connecting layer is adapted to a refractive index of a material of the semiconductor component that adjoins the connecting layer **(fig. 2, [0017] and [0046], wherein the refractive index of the resin filling 3 is adapted to the refractive index of the LED 2, which adjoins the resin filling 3)**.

7. Referring to claim **7**, Sorg and Bauer disclose an optoelectronic module of claim 1, and Sorg further discloses that the optical device has refractive and/or reflective elements **(fig. 2, [0046], wherein the lens 4 is the optical device)**.

8. Referring to claim **8**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Sorg further discloses that the semiconductor component is a luminescence diode component **(fig. 2, [0046], wherein the LED 2 is the semiconductor component)**.

9. Referring to claim **9**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Sorg further discloses that the semiconductor component is a surface- mountable component **(fig. 2, [0014] and [0026])**.

10. Referring to claim **10**, Sorg discloses a method for producing an optoelectronic module (fig. 2) comprising the steps of: providing a semiconductor component for emitting or detecting electromagnetic radiation**(LED 2, fig. 2, [0046])**, said semiconductor component having a radiation coupling area **(fig. 2, [0051], wherein the radiation coupling area of the semiconductor component is the radiating area of the LED 2)**; providing an optical device **(fig. 2, [0046], wherein the optical device is the lens 4)**; electrically connecting the semiconductor component to electrical lines **(fig. 2, [0049], wherein the electrical lines are the leadframes 5)**; mounting the optical device above the radiation coupling area of the semiconductor component **(fig. 2, [0046], wherein the optical device is the lens 4)**; and prior to mounting the optical device, providing a curable and, when in a cured state, a radiation-transmissive and deformable composition at least over the radiation coupling area of the

semiconductor component, wherein the applied composition is at least partly cured or let to be cured **(fig. 2, [0049], wherein the lens 4 is mounted prior to providing the resin material 3, whose composition is let to be cured)**, and wherein the optical device and the semiconductor component are fixed relative to one another and pressed against one another to squeeze the composition disposed therebetween, and wherein the composition, when squeezed, generates an opposing force that strives to press the optical device and the radiation coupling area apart **(fig. 2, [0046], wherein the LED 2 and the lens 4 are fixed relative to one another, and the filling resin 3 are fixed relative to one another)**.

However, Sorg does not disclose that the optoelectronic module comprises a carrier element having electrical connection electrodes.

Bauer teaches a method for producing an optoelectronic module comprising the steps of: providing a carrier element having electrical connection electrodes and electrical lines **(fig. 2, Col. 5, Ln. 6-27, wherein the carrier element is the support substrate 24, wherein the electrical connection electrodes are the corresponding traces 34, and the electrical lines are comprised of the clip 36 and the conductive strip 30)**; providing a semiconductor component for emitting or detecting electromagnetic radiation **(fig. 2, Col. 5, Ln. 6-12, wherein the semiconductor component is the optical sensor 22)**, said semiconductor component providing an optical device **(figs. 2 and 3, Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the optical device is the lens comprised by window 54)**; applying the semiconductor component on the carrier element and electrically connecting the semiconductor component to the connection electrodes **(fig. 2, Col. 6-27, wherein the optical sensor 22 is electrically connected to the corresponding traces 34)**; mounting the optical device above the semiconductor component **(figs. 2 and 3, Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the optical device is the lens comprised by window 54)**; and

providing a curable and, when in a cured state, a radiation-transmissive and deformable composition at least over the semiconductor component **(Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the composition is the epoxy filling the cavity 52)**, wherein the applied composition is at least partly cured or let to be cured, and wherein the optical device and the semiconductor component are fixed relative to one another and pressed against one another to squeeze the composition disposed therebetween, and wherein the composition, when squeezed, generates an opposing force that strives to press the optical device and the radiation coupling area apart **(figs. 2 and 3, Col. 5, Ln. 63 – Col. 6, Ln. 2 and Col. 9, Ln. 58-67, wherein the composition is the epoxy filling the cavity 52)**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the disclosure of Sorg, to further disclose the teaching of Bauer for the purpose of supporting the optoelectronic module **(Col. 4, Ln. 52-58)**.

11. Referring to claim **11**, The method of claim I0, and Bauer further teaches that the composition is applied in the form of a layer having a thickness of at least 30 micrometers: 25 to 500 micrometers **(fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is at least 30 micrometers)**.

17. Referring to claim **17**, Sorg and Bauer disclose a method of claim 11, and Bauer further teaches that the composition is applied in the form of a layer having a thickness of at least 100 micrometers: 25 to 500 micrometers **(fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 has a thickness of 100 micrometers)**.

12. Referring to claim **12**, The method of claim 11, and Bauer further discloses that the composition is applied in the form of a layer having a thickness of greater than or equal to 150 micometers and less than or equal to 350 micrometers: 25 to 500 micrometers **(fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is greater than or equal to 150 micrometers and less than or equal to 350 micrometers)**.

13. Referring to claim **13**, The method of claim 10, and Bauer further teaches that the composition has a lacquer, preferably a circuit board lacquer, which is deformable in a cured state **(fig. 2, Col. 5, Ln. 57 – Col. 6, Ln. 2, wherein the epoxy has a circuit board lacquer, which is suitable as a protective lacquer for printed circuit boards)**.

3. Claims **5, 14 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorg (U.S. Patent Application Publication No. 2002/0057057) in view of Bauer (U.S. Patent No. 6,130,448), as applied to claims 1-4, 6-13 and 16-17, in further view of Nakagawa (U.S. Patent No. 5,556,809).

5. Referring to claim **5**, Sorg and Bauer disclose an optoelectronic module as in claim 1. However, they do not disclose that a surface of the carrier element is at least partly coated for protection against external influences with a material that is also contained in the connecting layer.

Nakagawa teaches an image sensor device, wherein a surface of the carrier element is at least partly coated for protection against external influences with a material that is also contained in the connecting layer **(fig. 8, Col. 1, Ln. 54-59 and Col. 13, Ln. 40-48, wherein the material that is also contained in the connecting layer, is the transparent protection layer (66, 6) made of resin)**.

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the disclosure of Sorg and Bauer, and further disclose the teaching of Nakagawa, for the purpose of protecting the semiconductor component **(Col. 1, Ln. 54-59, Nakagawa)**.

14. Referring to claim **14**, Sorg and Bauer disclose a method as in claim 10. However, they don't disclose that the composition is applied at least to a part of a surface of the carrier element for protection against external influences.

Nakagawa teaches an image sensor device, wherein a composition is applied at least to a part of a surface of the carrier element for protection against external influences **(fig. 8, Col. 1, Ln. 54-59 and Col. 13, Ln. 40-48, wherein the composition is the transparent protection layer (66, 6) made of resin)**.

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the disclosure of Sorg and Bauer, and further disclose the teaching of Nakagawa, for the purpose of protecting the semiconductor component **(Col. 1, Ln. 54-59, Nakagawa)**.

15. Referring to claim **15**, Sorg, Bauer and Nakagawa disclose a method as in claim 14, and Nakagawa further teaches that the composition is applied to the radiation coupling area and to the surface of the carrier element in a single method step **(fig. 8, Col. 1, Ln. 54-59 and Col. 13, Ln. 40-48, wherein the composition is the transparent protection layer (66, 6) made of resin)**.

Response to Arguments

Regarding the argument in claims 1 and 10, that the applicants are being their own lexicographer by defining the term "the optical device and the semiconductor component are pressed against one another" as "the optical the optical device and the semiconductor component are held permanently in a state pressed against one another, counter to the force of the connecting layer, by a fixing device". However, this definition brings in a third limitation "a fixing device" for squeezing the connecting layer, which didn't get referred to in claims 1 and 10. Sorg in view of Bauer disclose squeezing the connecting layer.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAPE SENE whose telephone number is (571)270-5284. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on (571)272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PAPE SENE/
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